

FIG. 1

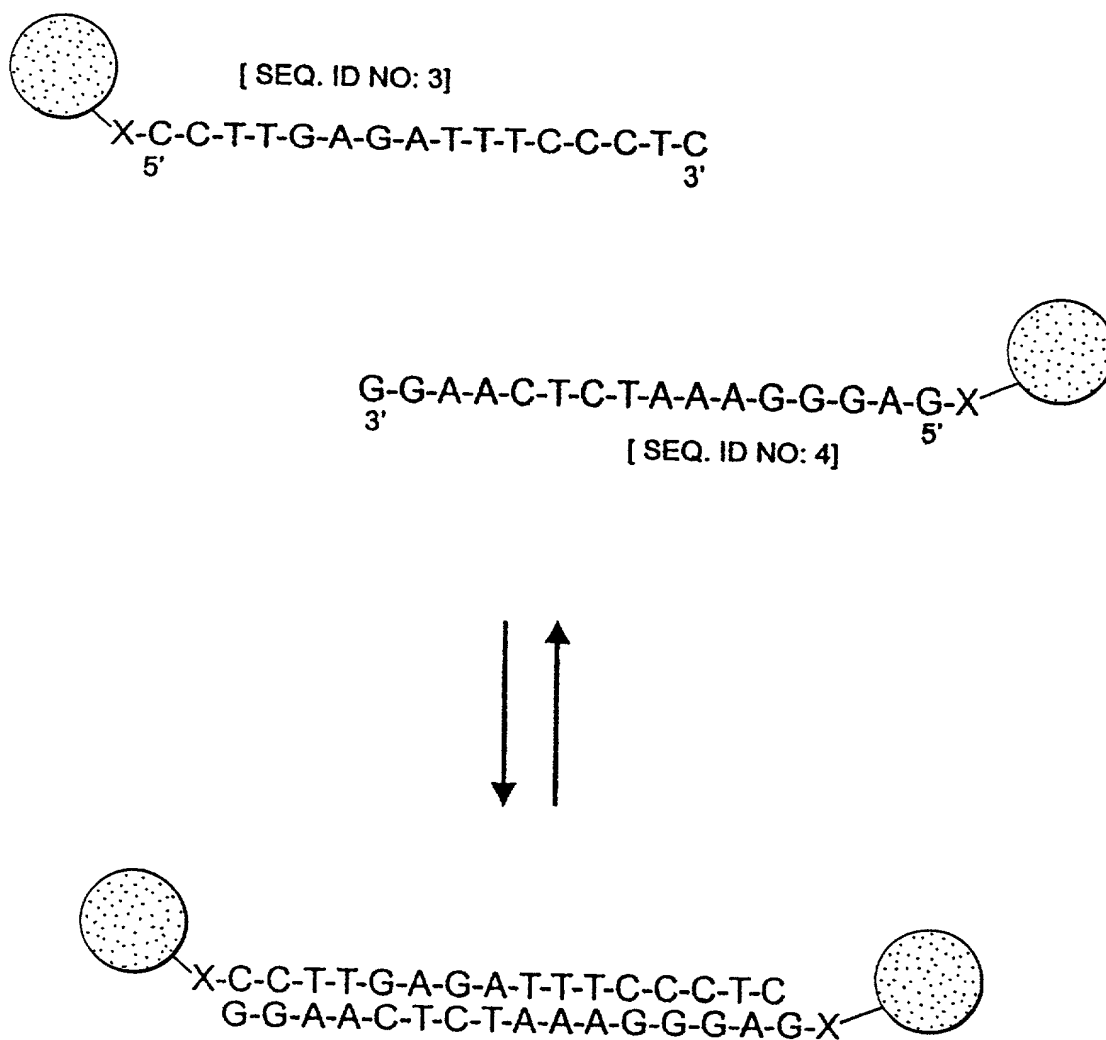
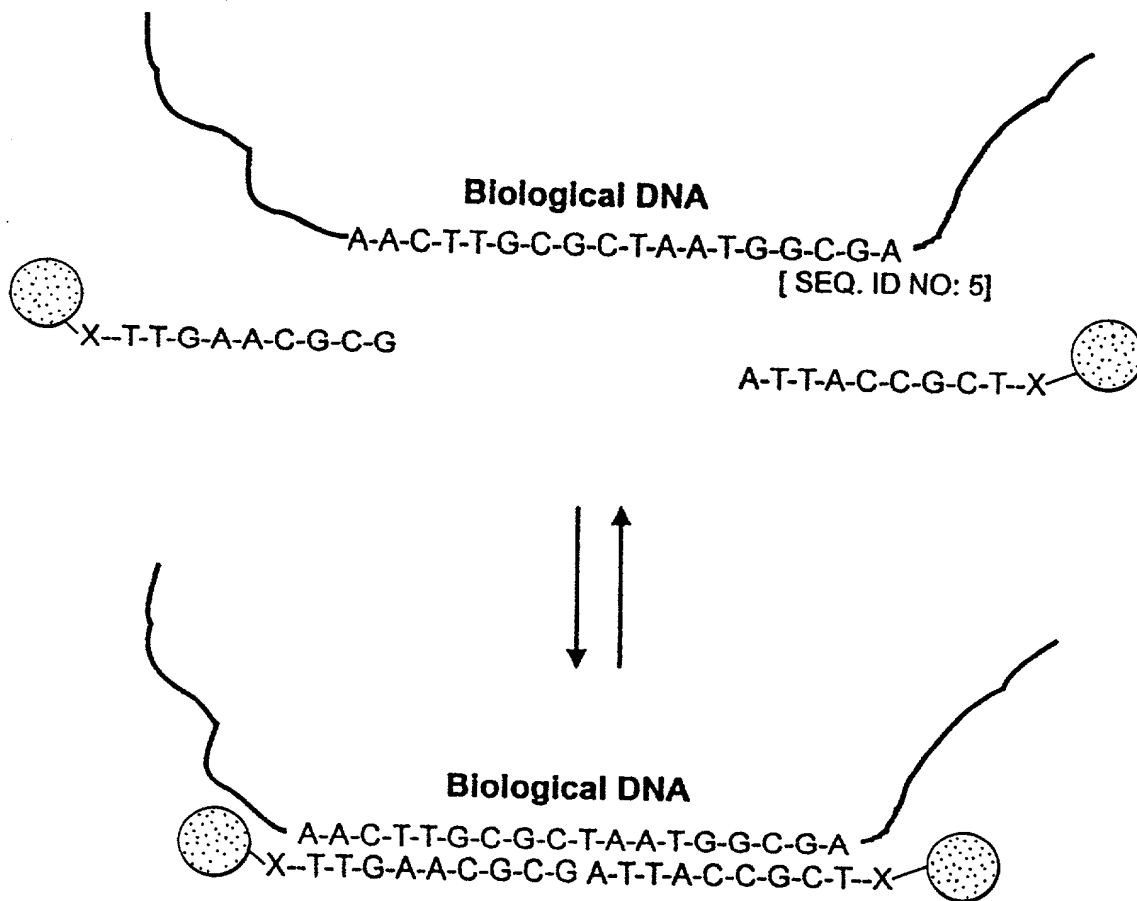
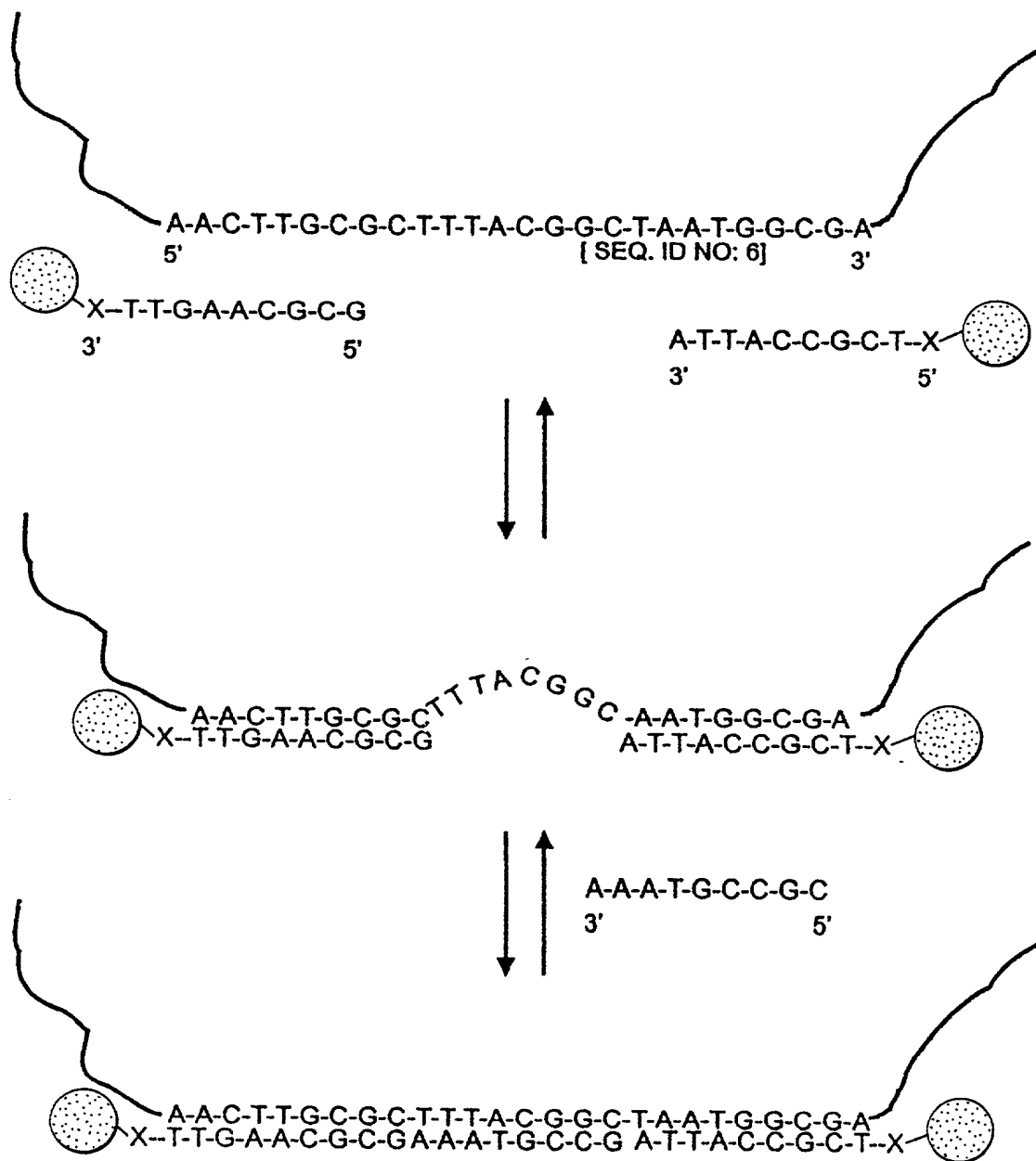
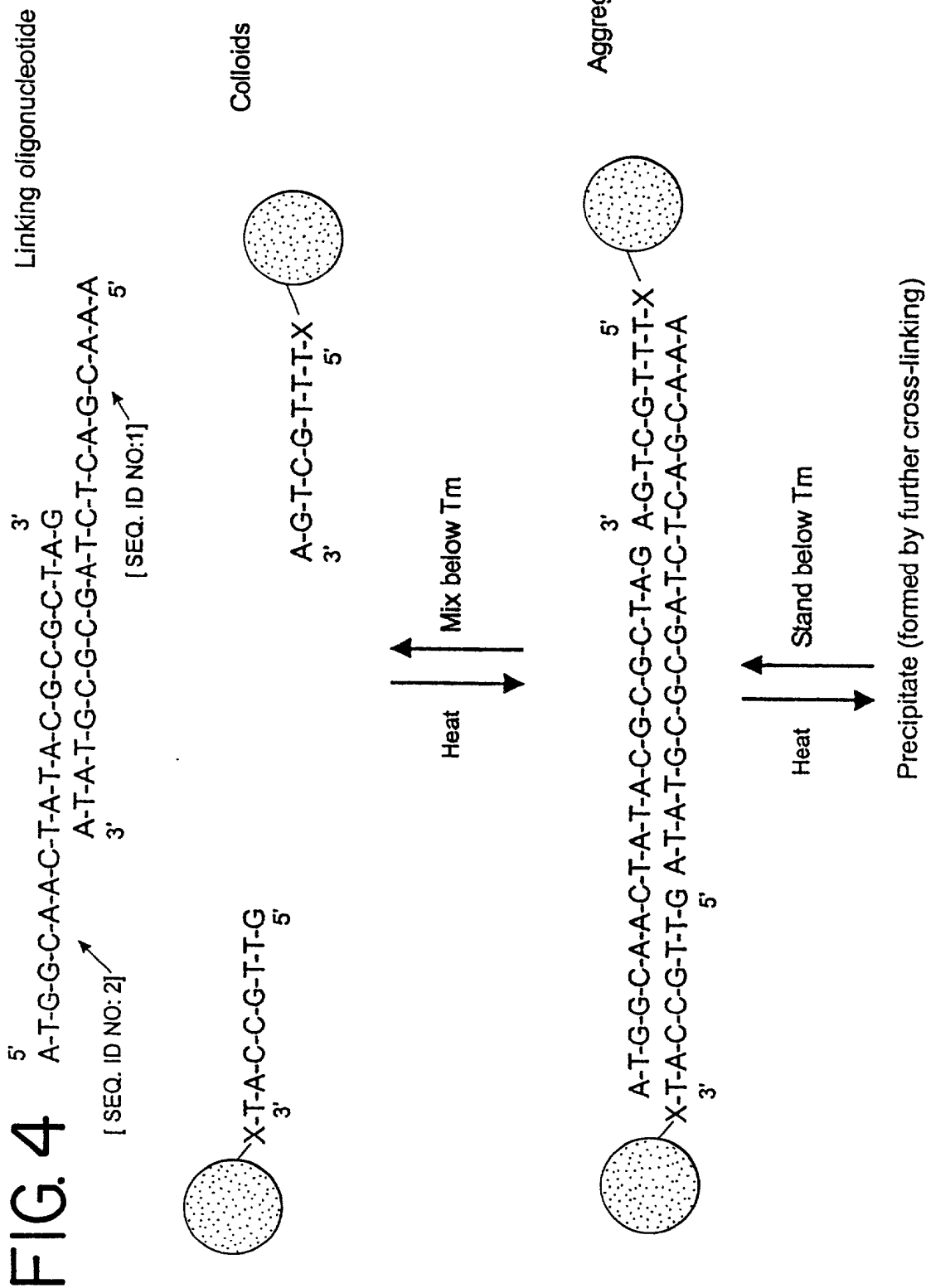


FIG. 2



# FIG. 3





# FIG. 5

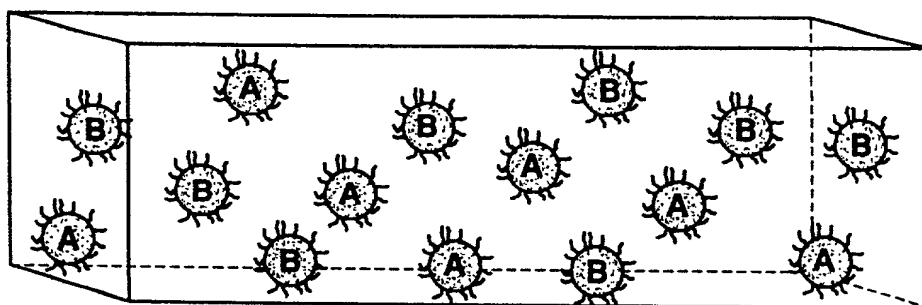


Au nanoparticles

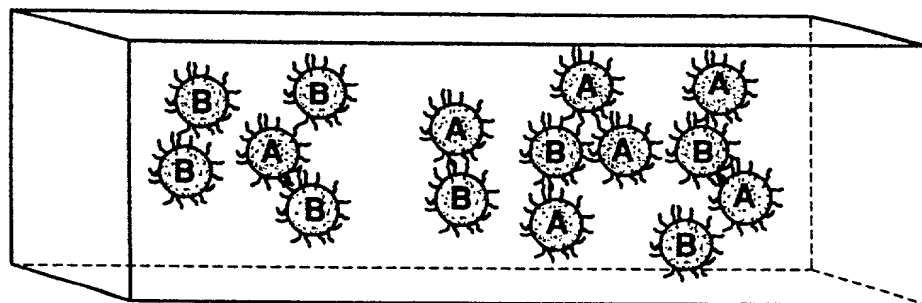
Modification with  
3' thiol TACCGTTG 5'



Modification with  
5' AGTCGTTT 3' thiol



Addition of linking DNA duplex  
5'ATGGCAAC IIII TCAGCAAA 5'



Further oligomerization  
and settling

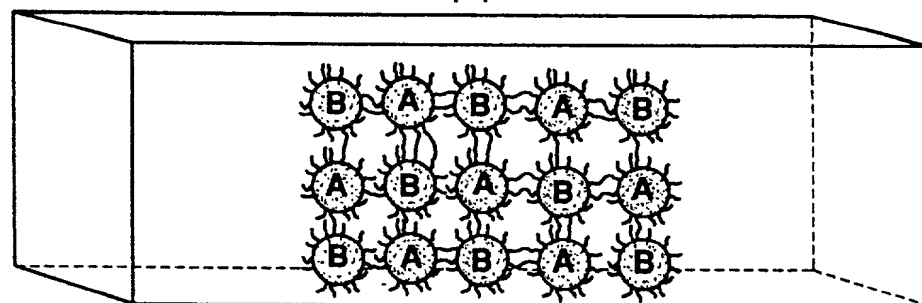


FIG.6A FIG.6B FIG.6C



FIG. 7

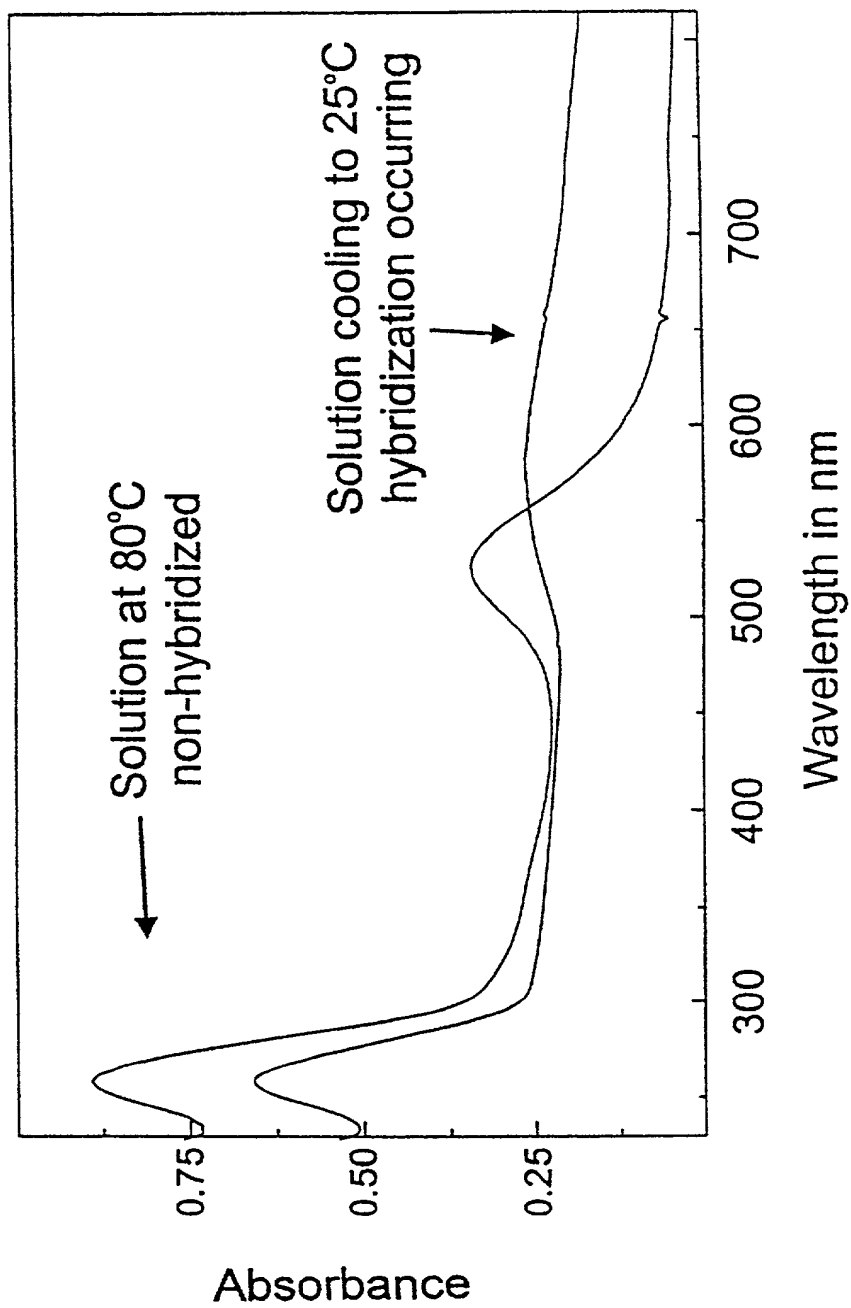


FIG. 8A

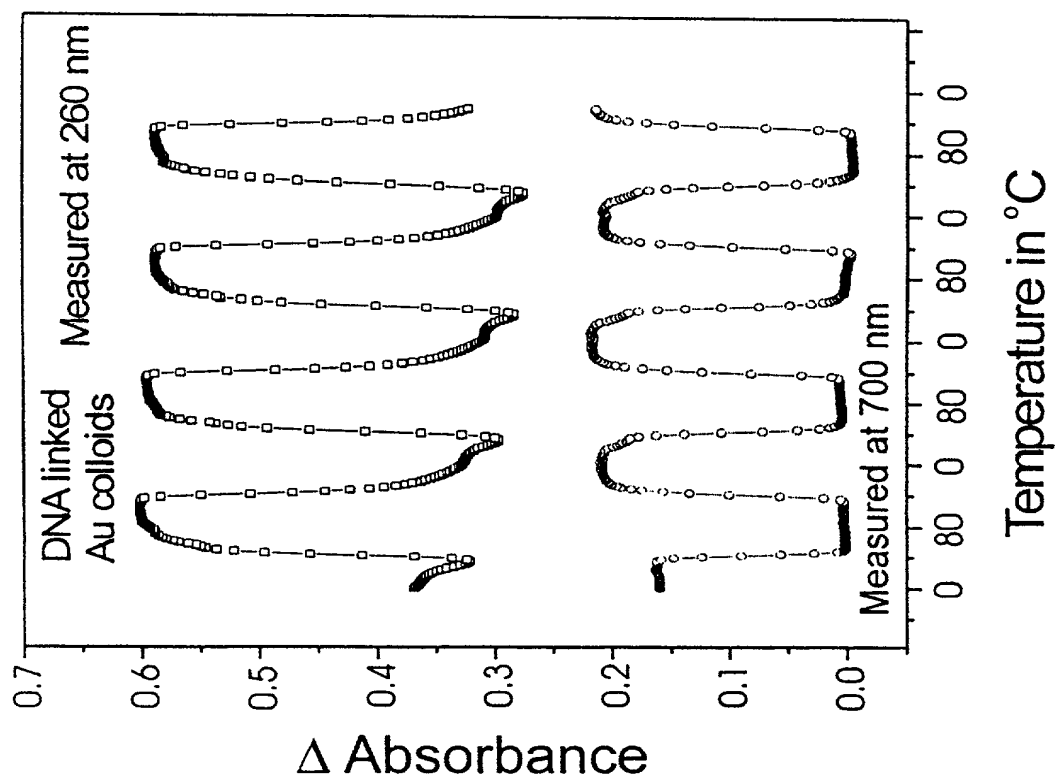


FIG. 8B

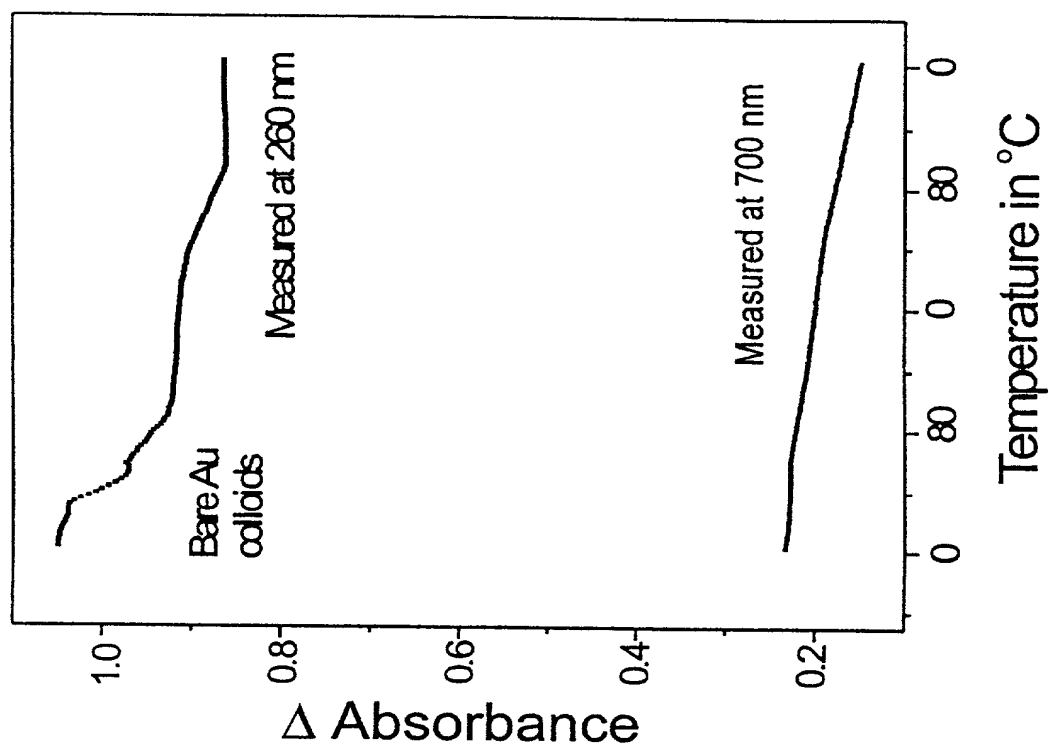




FIG. 9A

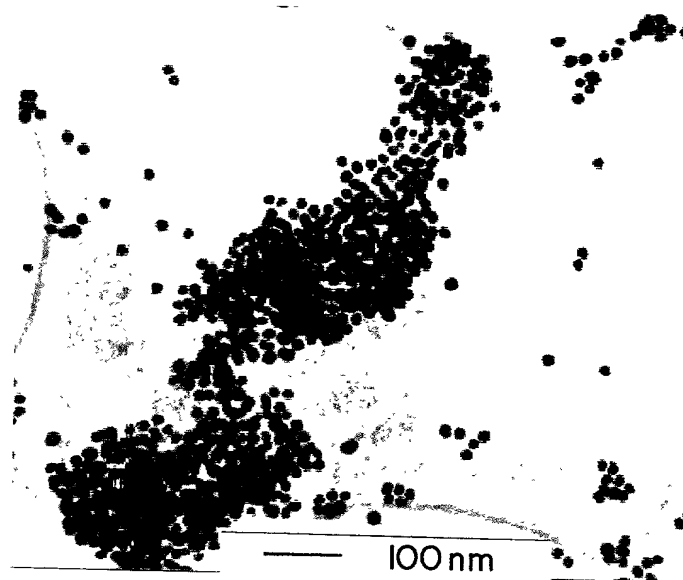


FIG. 9B

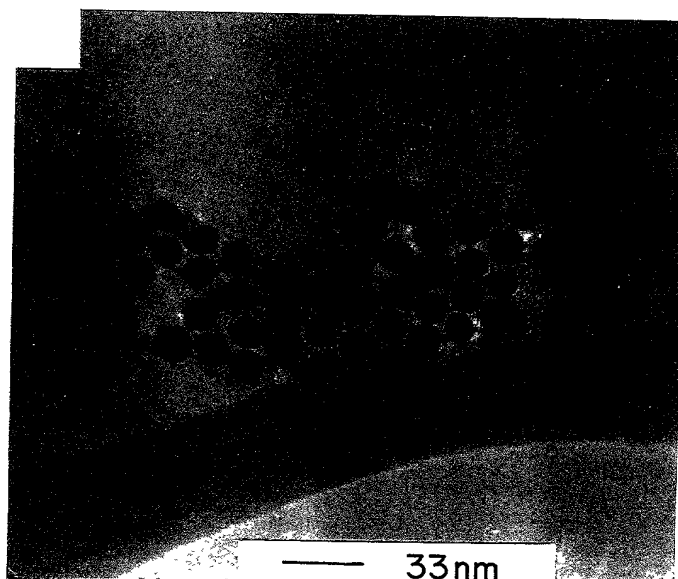


FIG. 10

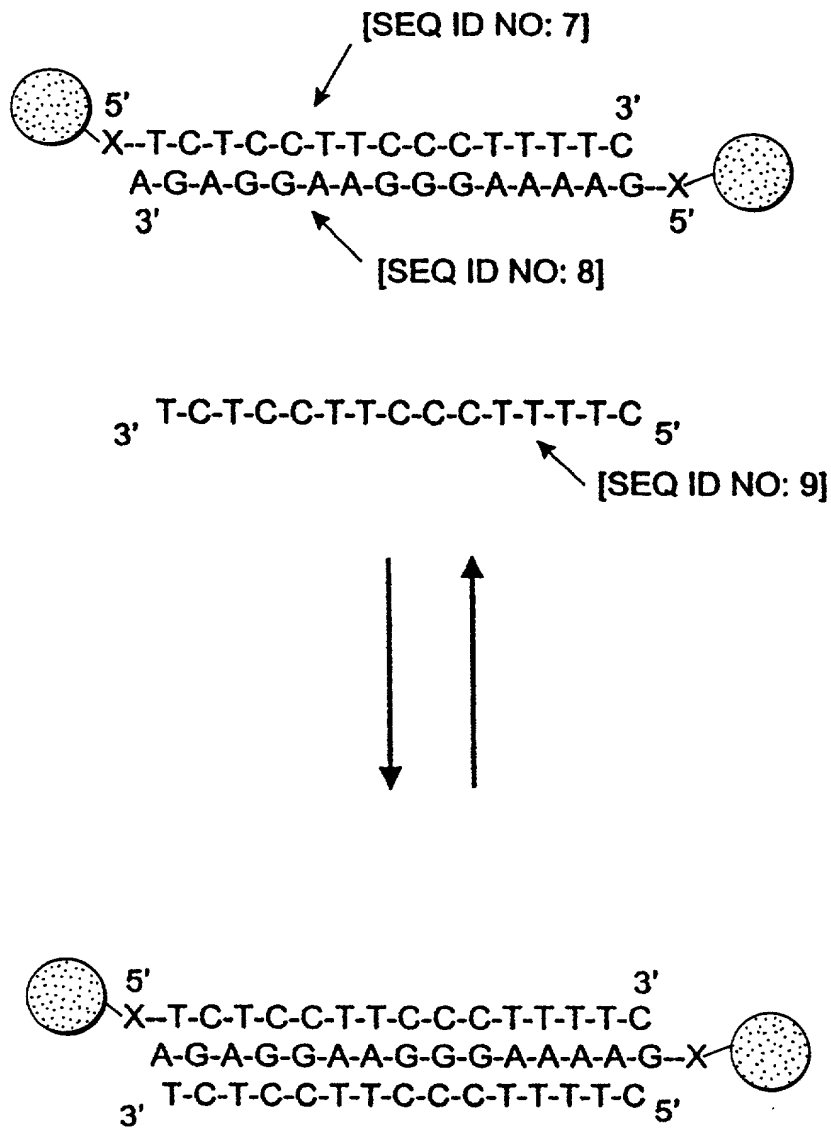
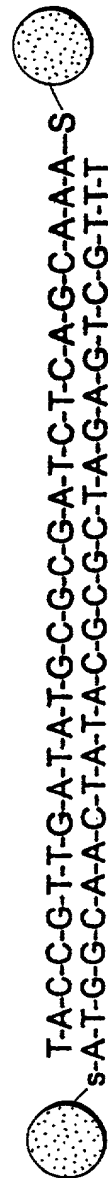
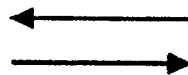
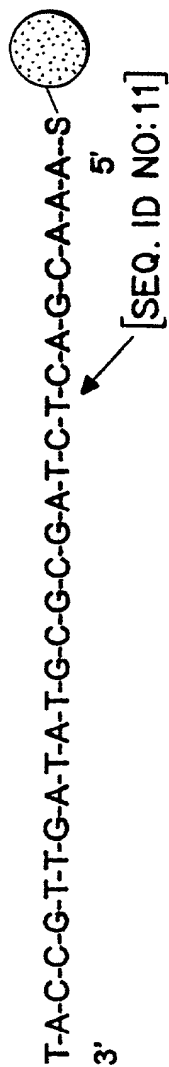
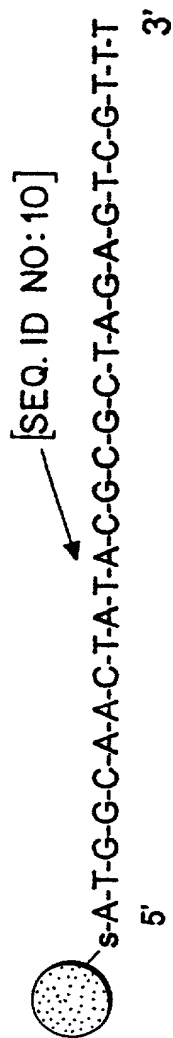
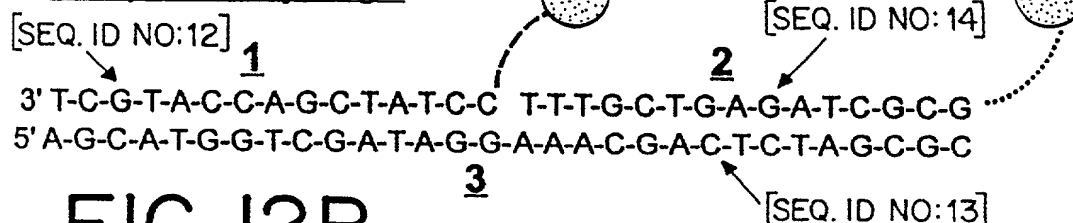


FIG. 11



# FIG. 12A

## Complementary Target



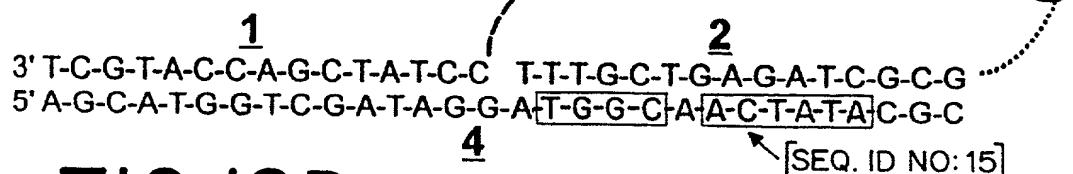
# FIG. 12B

## Probes without Target



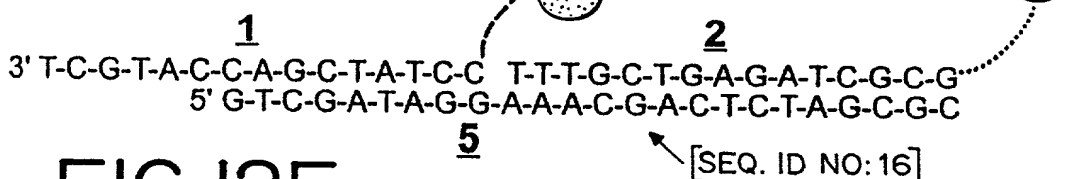
# FIG. 12C

## Half Complementary Target



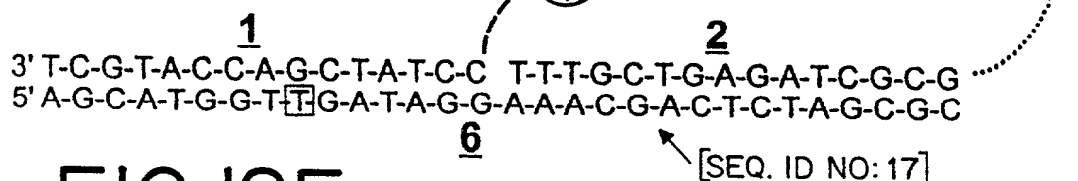
# FIG. 12D

## Target - 6 bp



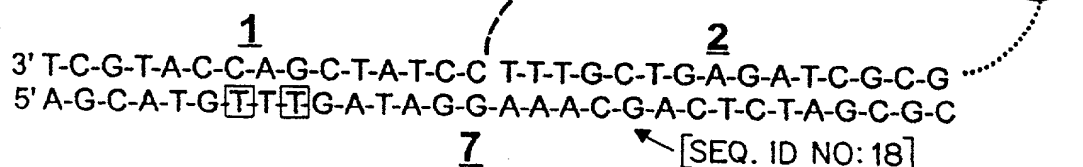
# FIG. 12E

## One bp Mismatch

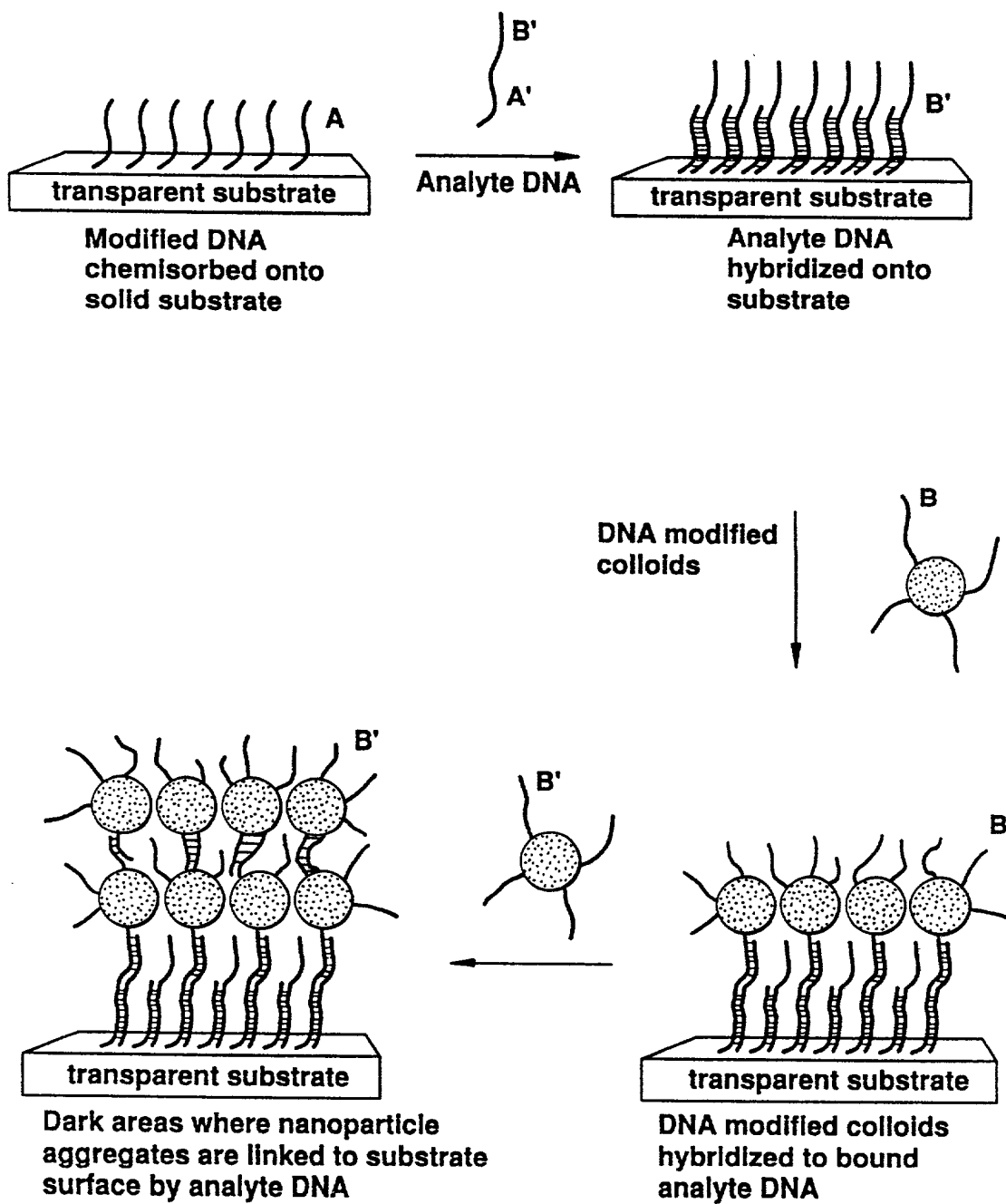


# FIG. 12F

## Two bp Mismatch



# FIG. 13A



# FIG. 13B

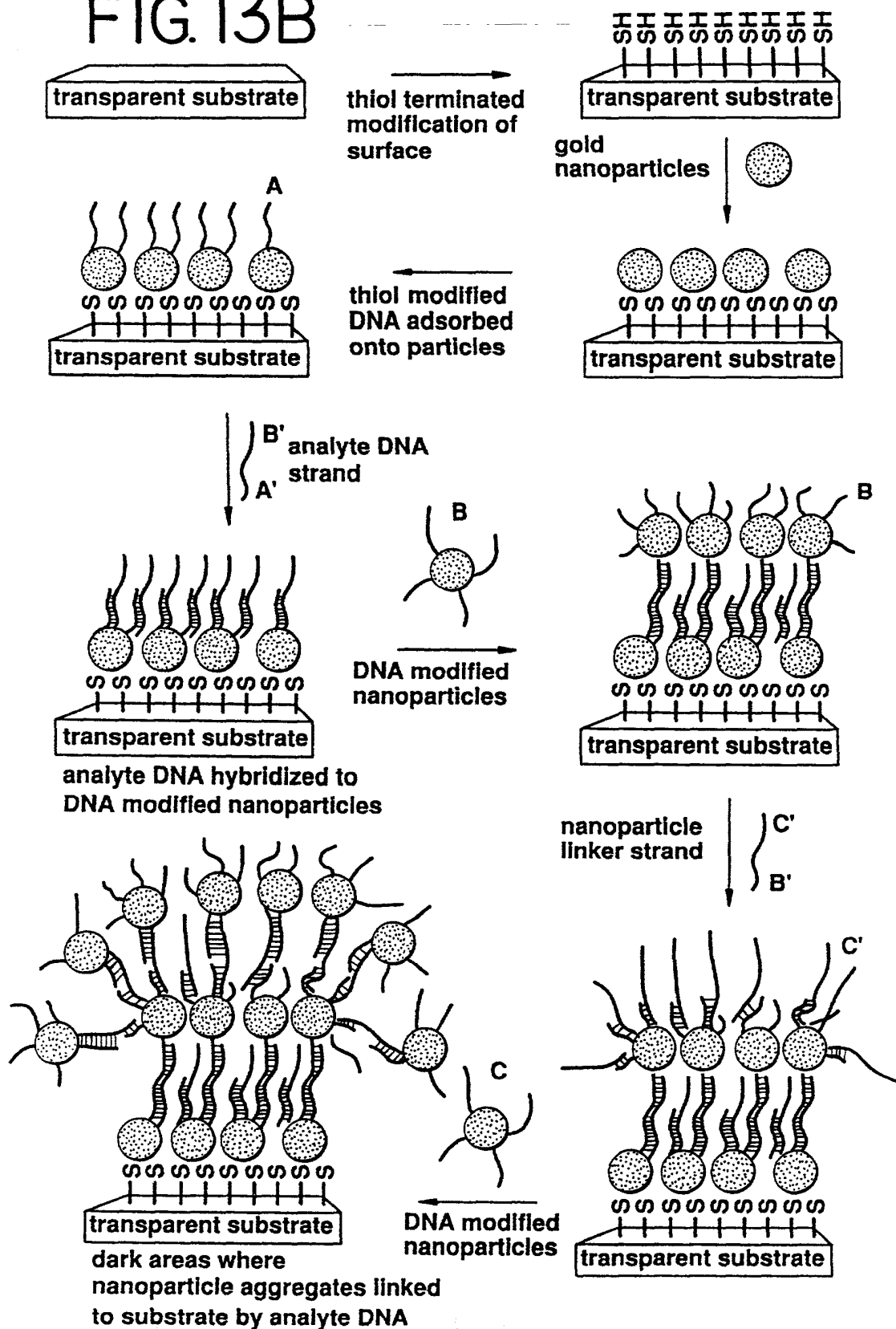


FIG. 14A

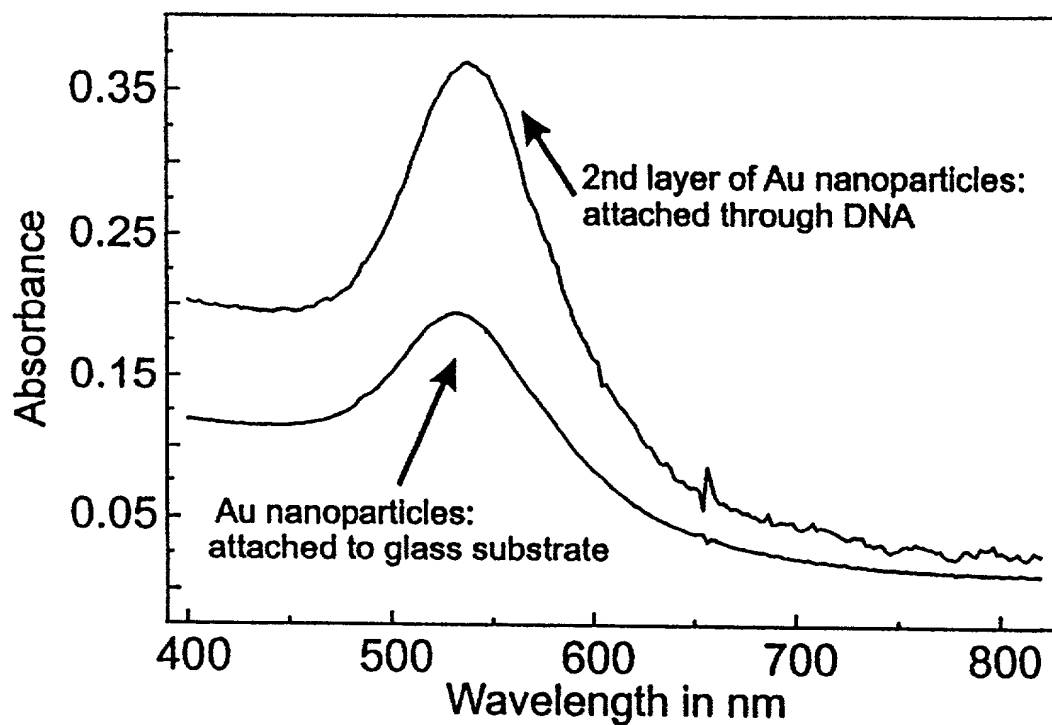
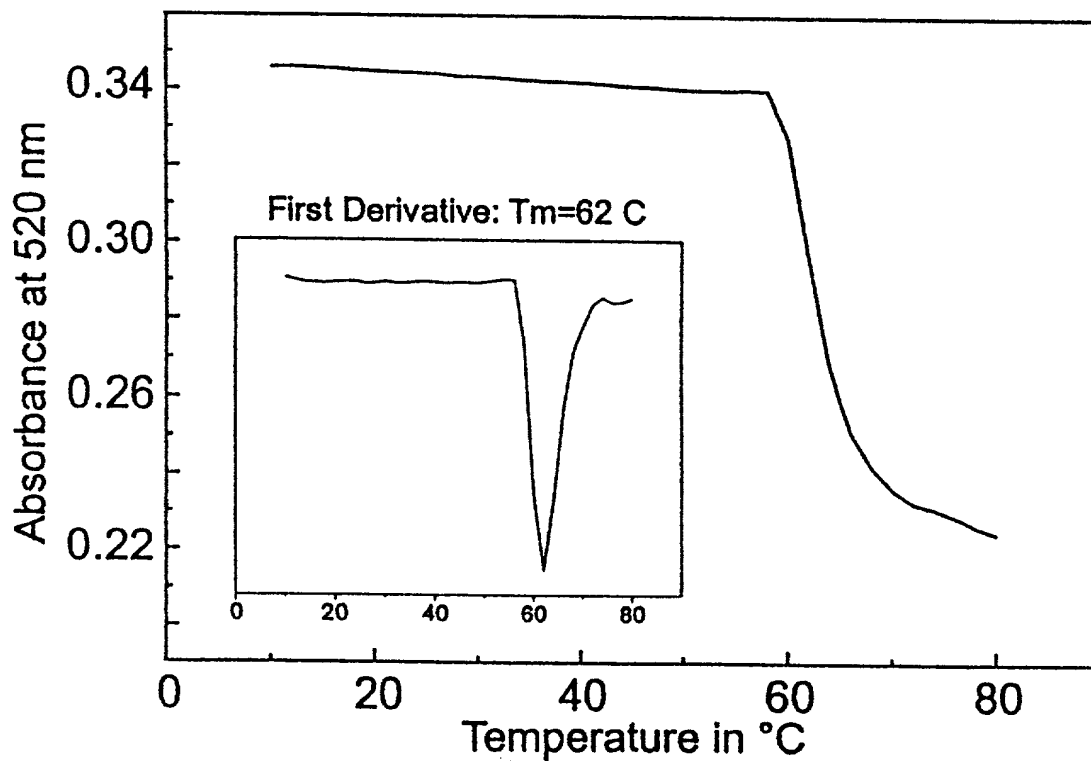
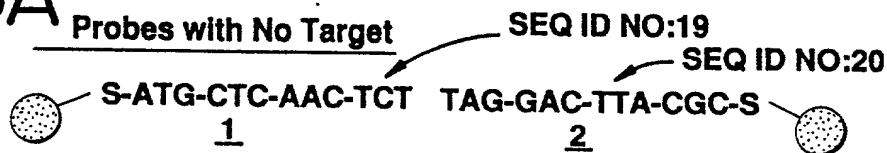


FIG. 14B

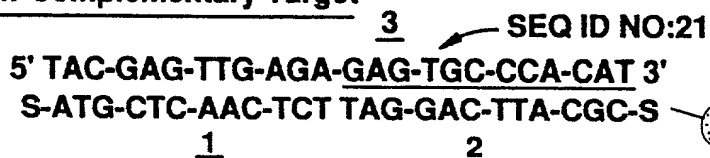


# FIG. 15A



# FIG. 15B

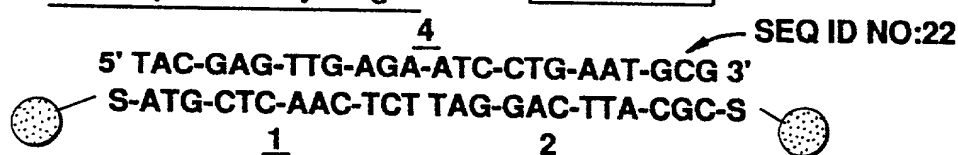
Half-Complementary Target



# FIG. 15C

Complementary Target

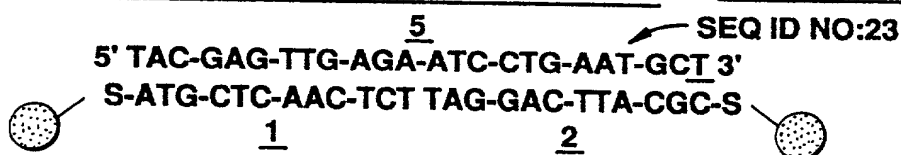
T<sub>m</sub>=53.5°C



# FIG. 15D

ONE Base-Pair Mismatch at Probe Head

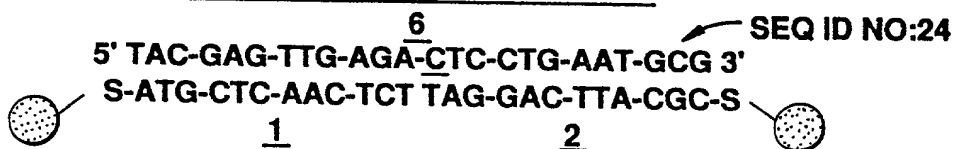
T<sub>m</sub>=50.4°C



# FIG. 15E

ONE Base-Pair Mismatch at Probe Tail

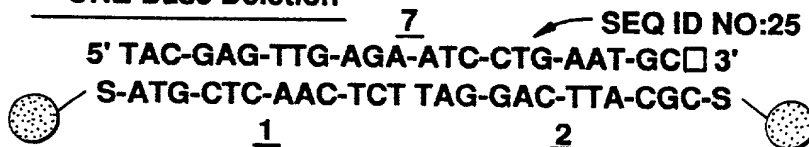
T<sub>m</sub>=46.2°C



# FIG. 15F

ONE Base Deletion

T<sub>m</sub>=51.6°C



# FIG. 15G

ONE Base-Pair Insertion

T<sub>m</sub>=50.2°C

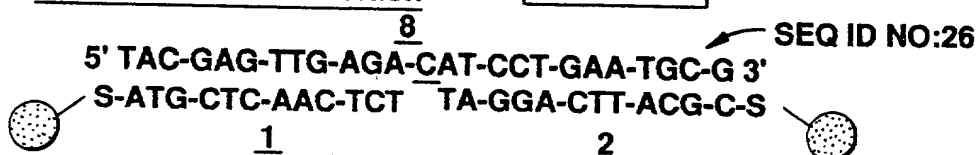




FIG. 16A

24 Base Template

5' TAC-GAG-TTG-AGA-ATC-CTG-AAT-GCG 3'  
—S-ATG-CTC-AAC-TCT TAG-GAC-TTA-CGC-S —  
1 2

FIG. 16B

48 Base Template with Complementary 24 Base Filler

5' TAC-GAG-TTG-AGA-CCG-TTA-AGA-CGA-GGC-AAT-CAT-GCA-ATC-CTG-AAT-GCG 3'  
—S-ATG-CTC-AAC-TCT GGC-AAT-TCT-GCT-CCG-TTA-GTA-CGT TAG-GAC-TTA-CGC-S —  
1 2

FIG. 16C

72 Base Template with Complementary 48 Base Filler

5' TAC-GAG-TTG-AGA-CCG-TTA-AGA-CGA-GGC-AAT-CAT-GCA-TAT-ATT-GGA-CGC-TTT-ACG-GAC-AAC-ATC-CTG-AAT-GCG 3'  
—S-ATG-CTC-AAC-TCT GGC-AAT-TCT-GCT-CCG-TTA-GTA-CGT-ATA-TAA-CCT-GCG-AAA-TGC-CTG-TTG TAG-GAC-TTA-CGC-S —  
1 2

FIG. 17A

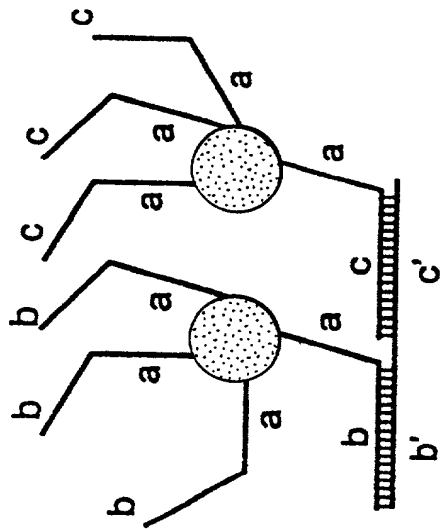


FIG. 17B

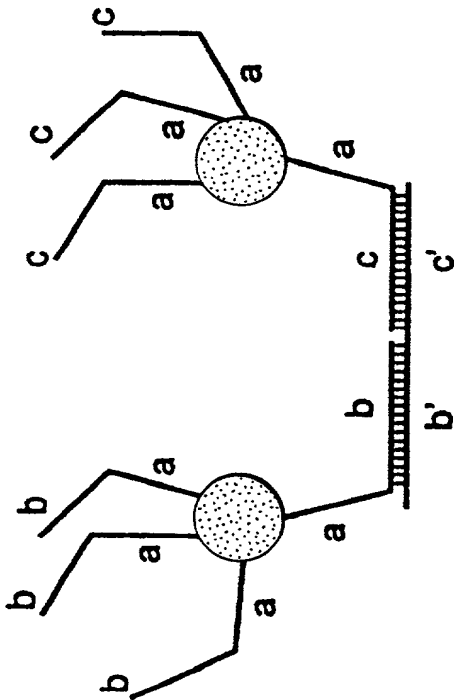


FIG. 17C

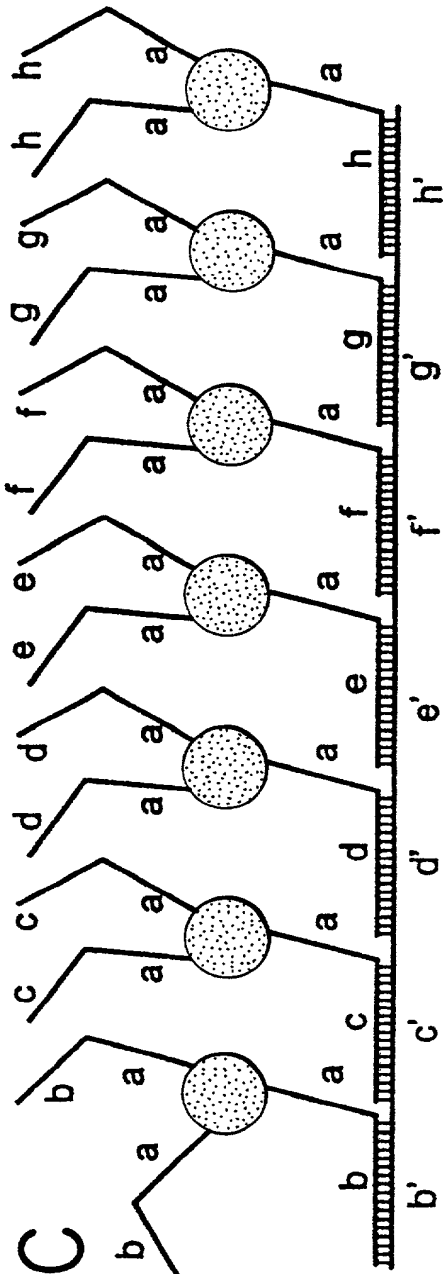


FIG. 17D

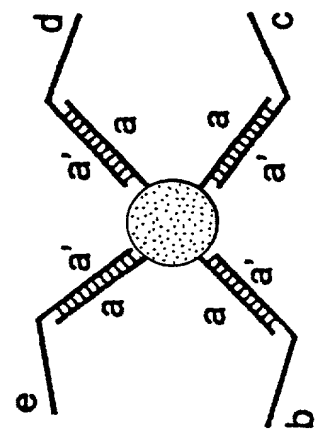
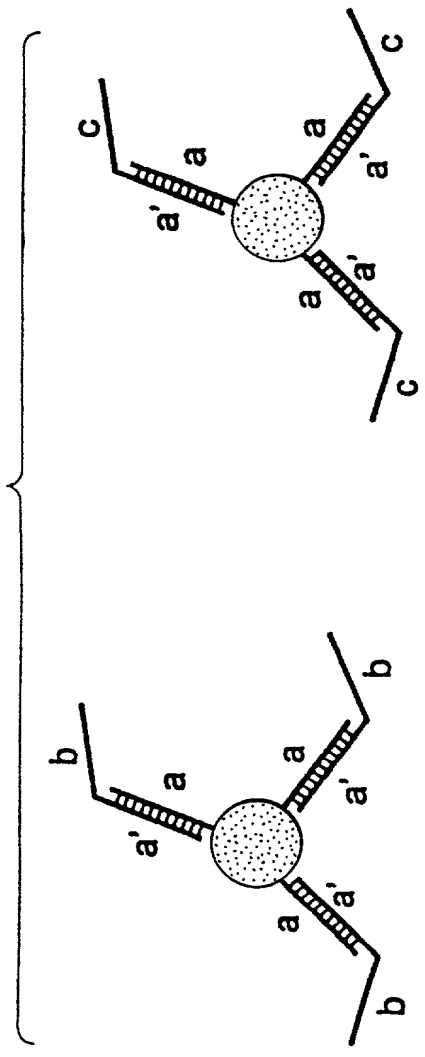


FIG. 17E

FIG. 18

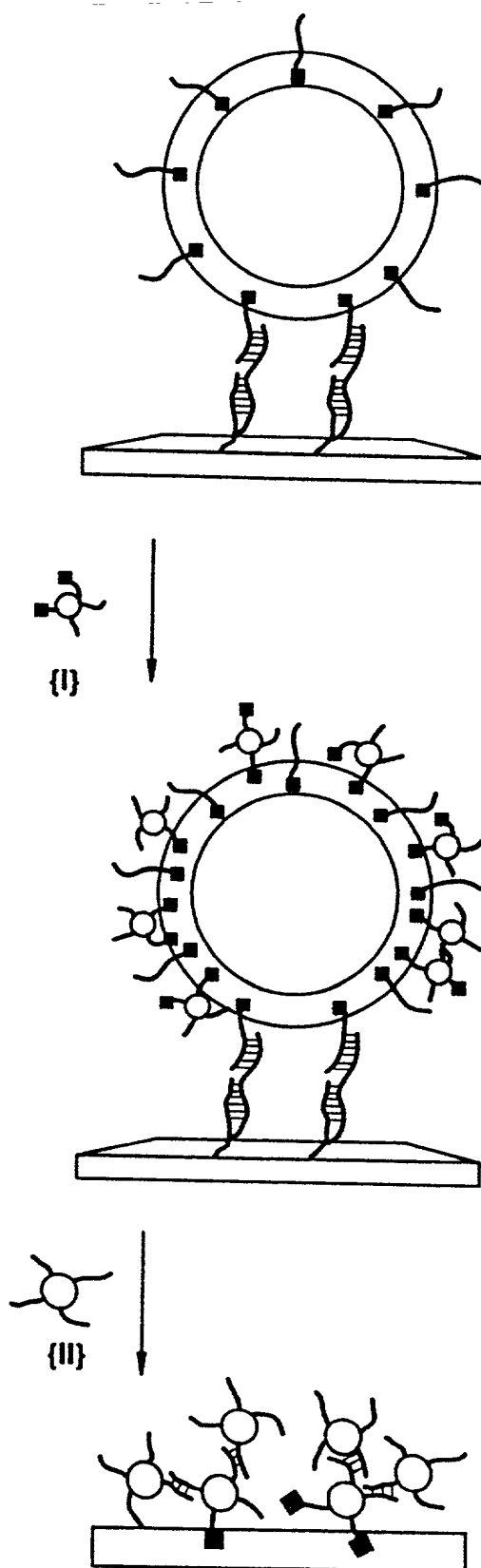


FIG. 19A

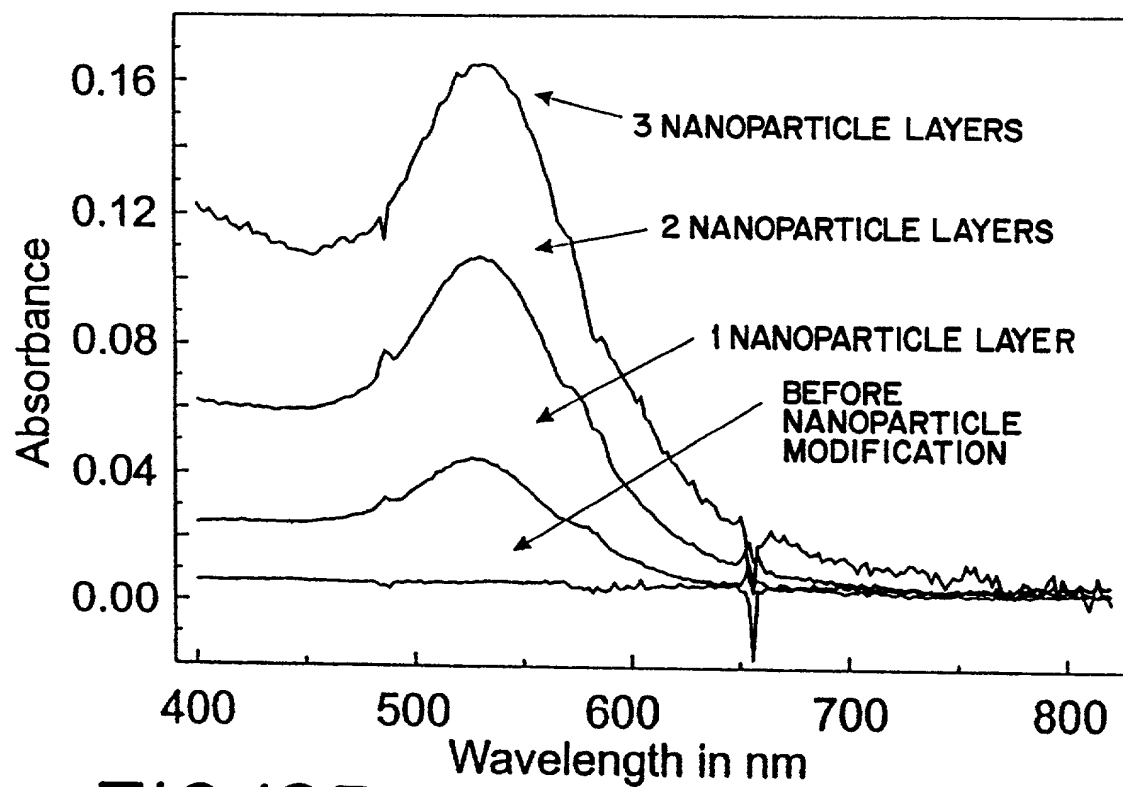
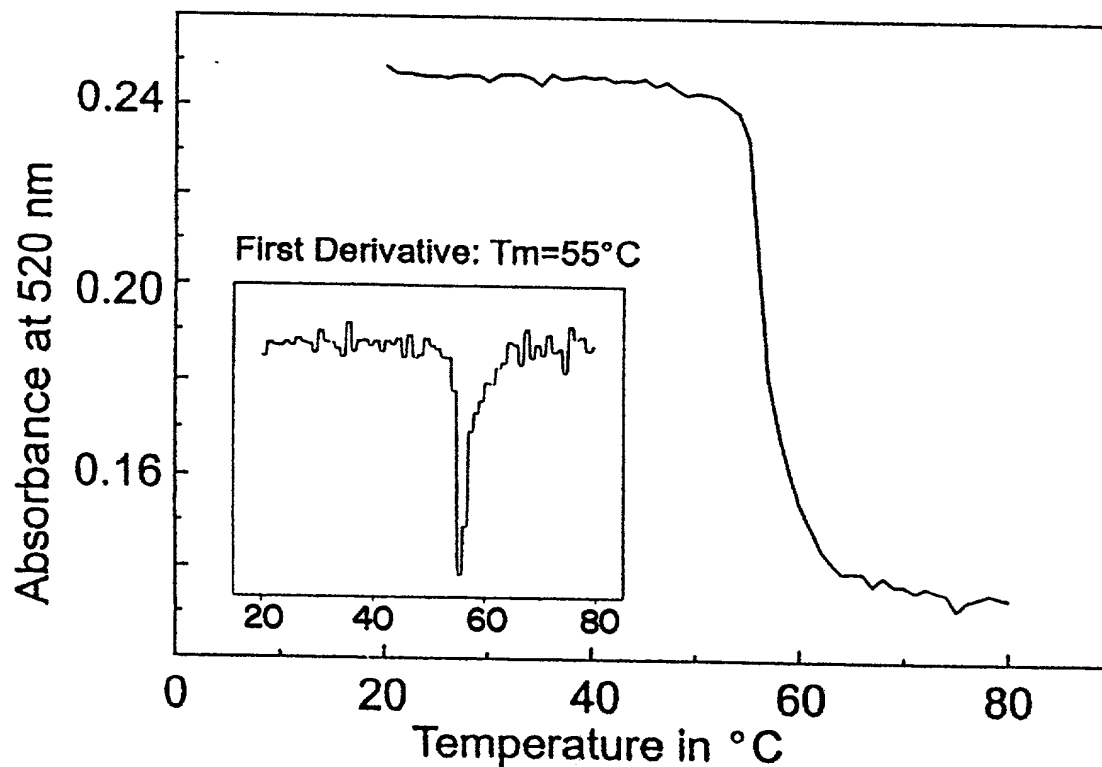
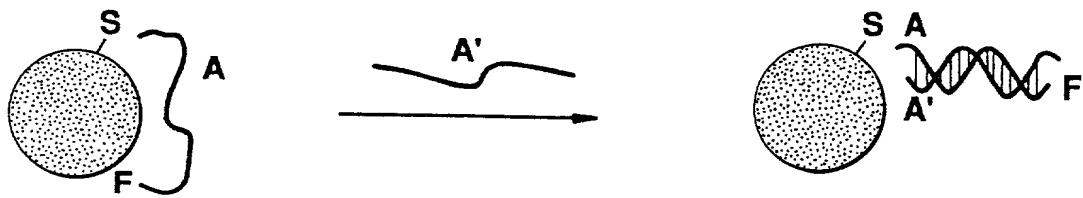


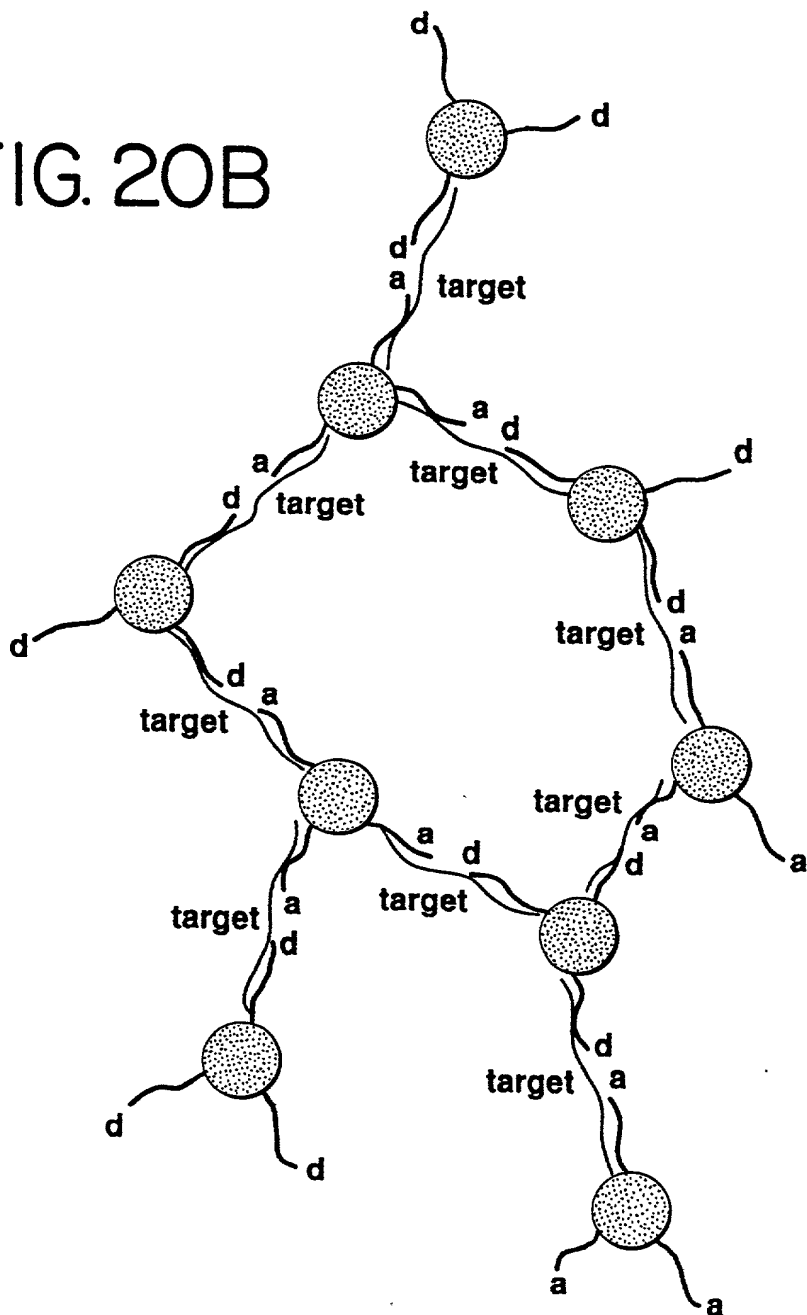
FIG. 19B



# FIG. 20A



# FIG. 20B



# FIG. 21

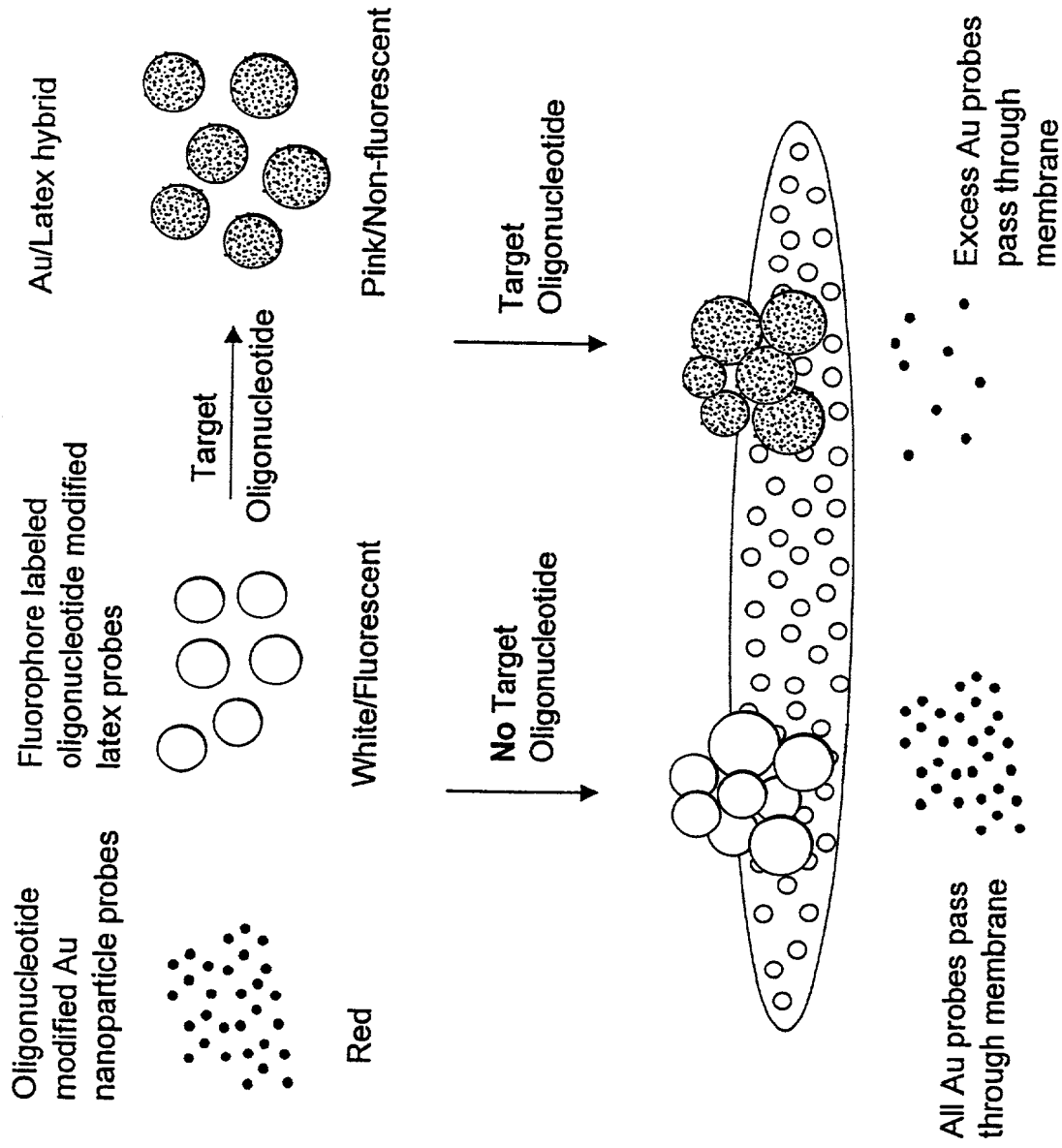
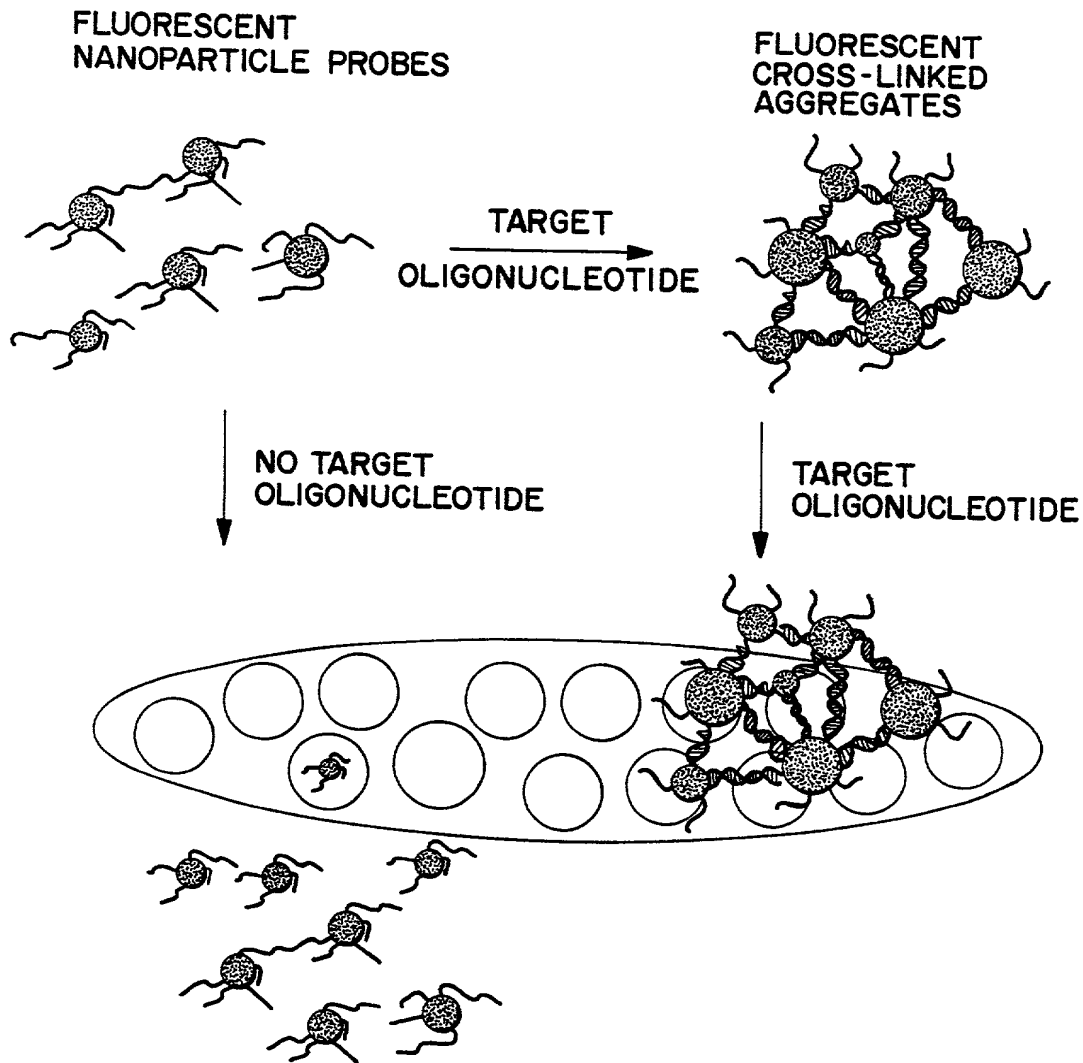


FIG. 22



THE FLUORESCENT NANOPARTICLE  
PROBES PASS THROUGH THE  
MEMBRANE

THE FLUORESCENT  
CROSS-LINKED AGGREGATES  
ARE RETAINED BY THE  
MEMBRANE



# FIG. 23

## Anthrax PCR Product

5'G GCG GAT GAG TCA GTA GTT AAG GAG GCT CAT AGA GAA GTA ATT AAT  
3'C CGC CTA CTC AGT CAT CAA TTC CTC CGA GTA TCT CTT CAT TAA TTA

TCG TCA ACA GAG GGA TTA TTG TTA AAT ATT GAT AAG GAT ATA AGA AAA  
AGC AGT TGT CTC CCT AAT AAC AAT TTA TAA CTA TTC CTA TAT TCT TTT

ATA TTA TCC AGG GTT ATA TTG TAG AAA TTG AAG ATA CTG AAG GGC TT 3'  
TAT AAT AGG TCC CAA TAT AAC ATC TTT AAC TTC TAT GAC TTC CCG AA 5'

**141 mer Anthrax PCR product** [SEQ ID NO:36]

3' CTC CCT AAT AAC AAT — 

[SEQ ID NO:37]

3' TTA TAA CTA TTC CTA — 

[SEQ ID NO:38]

Oligonucleotide-Nanoparticle Probes

## Blocker Oligonucleotides

3' C CGC CTA CTC AGT CAT CAA TTC CTC CGA GT  
3' A TCT CTT CAT TAA TTA AGC AGT TGT  
3' TAT TCT TTT TAT AAT AGG TCC CAA TAT  
3' AAC ATC TTT AAC TTC TAT GAC TTC CCG AA

[SEQ ID NO:39]

[SEQ ID NO:40]

[SEQ ID NO:41]

[SEQ ID NO:42]

# FIG. 24

